

THE RELATIONSHIP BETWEEN CHRONIC ANXIETY
AND PERCEPTIONS OF ILLNESS BEHAVIOR IN
LATENCY-AGED CHILDREN

by

Patricia Ferrari

A thesis submitted to the faculty of
The University of Utah
in partial fulfillment of the requirements for the degree of

Master of Science

College of Nursing
The University of Utah

June 1984

Copyright © 1984 Patricia Ferrari

All Rights Reserved

THE UNIVERSITY OF UTAH GRADUATE SCHOOL

SUPERVISORY COMMITTEE APPROVAL

of a thesis submitted by

Patricia Ferrari

This thesis has been read by each member of the following supervisory committee and by majority vote has been found to be satisfactory.

May 4, 1984

Bonnie C. Clayton
Chairman: Bonnie C. Clayton, Ph.D.

May 4, 1984

Christine Gillies
Christine Gillies, R.N., M.S.

May 12, 1984

James H. Hays

THE UNIVERSITY OF UTAH GRADUATE SCHOOL

FINAL READING APPROVAL

To the Graduate Council of The University of Utah:

I have read the thesis of Patricia Ferrari in its final form and have found that (1) its format, citations, and bibliographic style are consistent and acceptable; (2) its illustrative materials including figures, tables, and charts are in place; and (3) the final manuscript is satisfactory to the Supervisory Committee and is ready for submission to the Graduate School.



Bonnie Clayton, R.N., Ph.D.
Member, Supervisory Committee

Approved for the Major Department



Linda
Chairman, Dean

Approved for the Graduate Council



ABSTRACT

A primary mental health goal is helping children to develop self-esteem and the ability to cope with stress and anxiety.

A preventive approach could foster an awareness of children at risk for chronic anxiety and in need of assistance, particularly in situations perceived to be unusually stressful.

This study was conducted to examine the relationship between the dimensions of manifest anxiety and latency-aged children's perceptions of their own illness behaviors. On the assumption that the intensity of the anxiety is proportionate to the meaning the individual ascribes to a given situation, it was proposed that subjective perceptions of illness might be more threatening to children who are chronically anxious than to those who are not, and would be less able to cope effectively.

Three hypotheses were developed based on a review of the literature. The first stated that the more anxious the children were, the more likely they would be to perceive themselves displaying either very many or very few illness behaviors. The second hypothesis

stated that the less anxious latency-aged children were, the more likely they would be to perceive themselves displaying a moderate amount of illness behaviors.

The third hypothesis stated that there would be no significant difference between the perceived illness behaviors of healthy children and those of children with a significant history of illness.

Fifty-four children aged eight to 11 were administered a questionnaire containing a manifest anxiety scale which consisted of physical, worry and fear dimensions, and an illness behavior scale which contained emotionality, acceptance and communication dimensions. Through the use of Pearson Product-Moment Correlation Coefficients (r), the dimensions of each of these scales were correlated to determine whether or not significant relationships existed.

There was no significant relationship between the total illness behavior score and the total manifest anxiety score. Therefore, neither the first nor second hypotheses was supported. However, a scattergram was used to illustrate that children with the highest anxiety scores had high illness behavior scores while children with lower manifest anxiety scores had moderately-ranged illness behavior scores. This indicates that children with moderately high anxiety scores were more likely to perceive themselves displaying many illness behaviors

while children who had low anxiety scores were apt to perceive themselves displaying a moderate amount of illness behaviors.

A t-test for independent measures demonstrated no significant difference between the responses of healthy children and children with a recent history of illness. Therefore, the third hypothesis was supported.

An additional finding of the study was that of all the aspects of illness behavior, emotionality was most related to manifest anxiety and was significantly correlated with physical aspects, worry aspects, and total manifest anxiety score.

CONTENTS

ABSTRACT	iv
LIST OF TABLES	ix
ACKNOWLEDGMENTS.	x

Chapter

I. INTRODUCTION.	1
Purpose	1
Hypotheses.	2
Definition of Terms	2
Assumptions and Justification	4
II. LITERATURE REVIEW	7
Anxiety Theory.	8
Anxiety and Illness Behavior.	12
Illness Behaviors	13
Health History and Beliefs.	14
Summary	22
III. METHODOLOGY	23
Sample.	23
Design.	24
Data Collection Procedure	27
IV. RESULTS AND DISCUSSION.	28
Hypothesis One.	30
Hypothesis Two.	33
Hypothesis Three.	34
Additional Findings	34
V. SUMMARY AND RECOMMENDATIONS	41
Limitations	42
Implications for Nursing.	43
Recommendations for Further Research.	44

Appendices

A. PARENTAL CONSENT FORM AND QUESTIONNAIRE. .	46
B. CHILDRENS' QUESTIONNAIRE	49
SELECTED BIBLIOGRAPHY	54

LIST OF TABLES

1.	Questions in Each Dimension with Range of Scores.	26
2.	Age and Sex Distribution of Sample.	29
3.	Illness Behavior Mean Scores, Standard Deviations and Range.	29
4.	Manifest Anxiety Mean Scores, Standard Deviations and Range.	29
5.	Pearson Product-Moment Correlation Coefficient (\underline{r}) for All Dimensions of Illness Behavior and Manifest Anxiety.	32
6.	T-test of Dimensions of Illness Behavior and Manifest Anxiety Between Children With a Significant History of Illness and Those Without a Recent Significant History of Illness	35
7.	T-test of Dimensions of Illness Behavior and Manifest Anxiety Between Males and Females. . .	38

ACKNOWLEDGMENTS

I wish to extend my gratitude to those people who made contributions toward the completion of my thesis. Among these are the members of my Supervisory Committee: Ms. Chris Gillies, Dr. Tom Metcalf, and especially, Dr. Bonnie Clayton, whose encouragement and guidance was greatly appreciated in the preparation of this manuscript. In addition, I would like to thank Dr. Marge Pett for her assistance with the statistical aspects of this study.

I would also like to express my gratitude to the Boy Scouts and Girl Scouts of America for their participation in this study.

A special thanks to my parents, Bill and Maureen Erb, who have always encouraged my endeavors.

Finally, my love and appreciation to my husband, Ray, for his patience and invaluable support throughout my graduate experience.

CHAPTER I

INTRODUCTION

An important factor in a child's emotional growth and the development of self-esteem is the ability to cope with stress and anxiety. Helping a child to develop self-esteem and a sense of security is a primary mental health goal. Yet, assisting children to cope with anxiety is an ongoing challenge for mental health nurses and pediatric nurse practitioners, as well as pediatricians, teachers, and all others who work with children on a professional basis. There is a need to give greater attention to those factors that help explain why children react differently when facing similar stressors. One preventive approach to childhood anxiety would be to focus on the recognition of behaviors that may be indicative of chronic anxiety. This could foster an enhanced awareness of those children at risk and in need of further evaluation and assistance, particularly in instances of increased or unusual stress.

Purpose

The purpose of this study was to determine if there is a significant correlation between chronic anxiety

in children and their tendency either to deny pain and illness or to exaggerate it. In order to investigate the influence of anxiety on illness behaviors, the following problem statement was formulated:

What is the relationship between the dimensions of chronic anxiety and the latency-aged child's perceptions of illness behavior?

Hypotheses

Three hypotheses were formulated to direct the study and predict possible outcomes:

1. The more anxious latency-aged children, the more likely they will be to perceive themselves displaying either very many or very few illness behaviors.
2. The less anxious latency-aged children, the more likely they will be to perceive themselves displaying a moderate number of illness behaviors.
3. There will be no significant difference between the perceived illness behaviors of healthy children and those of children with a recent significant history of illness.

Definition of Terms

The research variables involved in this study are dimensions of chronic anxiety and the child's perception of illness behavior. Conceptually defined, chronic anxiety is the apprehension and uncertainty that is consistently experienced by the child. Chronic anxiety

was measured by a standardized children's manifest anxiety scale known as the WITF or "What I Think and Feel," which is composed of 28 self-report objective items that identify childrens' feelings about themselves and their ability to solve problems. This scale contains three subscales which further characterize the manifestations of chronic anxiety into the dimensions of a) physical aspects, b) worry and oversensitivity, and c) fear and concentration (Reynolds & Richmond, 1979).

The perception of illness behavior was conceptually defined as the way given symptoms may be perceived and acted upon. This was operationalized by a 13-item questionnaire which was a reconstruction of measures used by Campbell (1978). This questionnaire elicits childrens' self-reports of their behaviors in a variety of illness or injury-related situations. This scale is also further divided into three dimensions of sick role functioning: a) emotionality or display of feelings, b) acceptance of the sick role or acting in a way that would define the child as ill, and c) communication or readily informing parents of the sick role.

The term "latency-aged child" refers to the school-aged child during the period of development prior to adolescence. For the purpose of this study, it referred to eight through 11 year-old male and female children. On the assumption that age is influential in sick role

behavior, a specific age range was examined in order to control for development variability.

Significant illness refers to a disorder which identifies the child as ill and includes both serious illness or injury. Recent significant illness was measured in this study by parental responses to six questions regarding their child's health history and was operationally defined as a chronic or serious illness or injury within the past year.

Assumptions and Justification

This study was based on several assumptions. The first was that a child's psychological characteristics and perceptions of experience are determinants of behavior. The second assumption was that children's self-value and coping style are indicators of their ability to master stressful situations (Burke, 1978). Throughout the literature, anxiety has been related to feelings of helplessness and insecurity (Horney, 1937; Sullivan, 1953). Whenever a real or potential threat is detected, the perception gives rise to anxiety which, in turn, mobilizes defense mechanisms (Freud, 1936). If the potential threat is illness or injury, the defense mechanisms of the chronically anxious child might be either a) aggression or acting out behaviors and complaining, or b) withdrawal and denial of the threat of illness. Both of these responses are maladaptive and most emo-

tional problems represent some form of maladaptive coping. A nonanxious child would be expected to cope more effectively and to be able to deal with a potential threat through problem solving. This would result in behavior appropriate to the situation.

Horney maintained that the intensity of the anxiety is proportionate to the meaning that the individual ascribes to the situation (Horney, 1937). Therefore, the subjective perception of illness might be more threatening to the child who is chronically anxious than to the child who is not. The chronically anxious child would be less able to cope effectively and would be more apt to respond in a maladaptive fashion. This would hinder emotional growth and the development of self-esteem and would reinforce feelings of helplessness and insecurity. The model contained in Figure 1 helps to further explain this rationale.

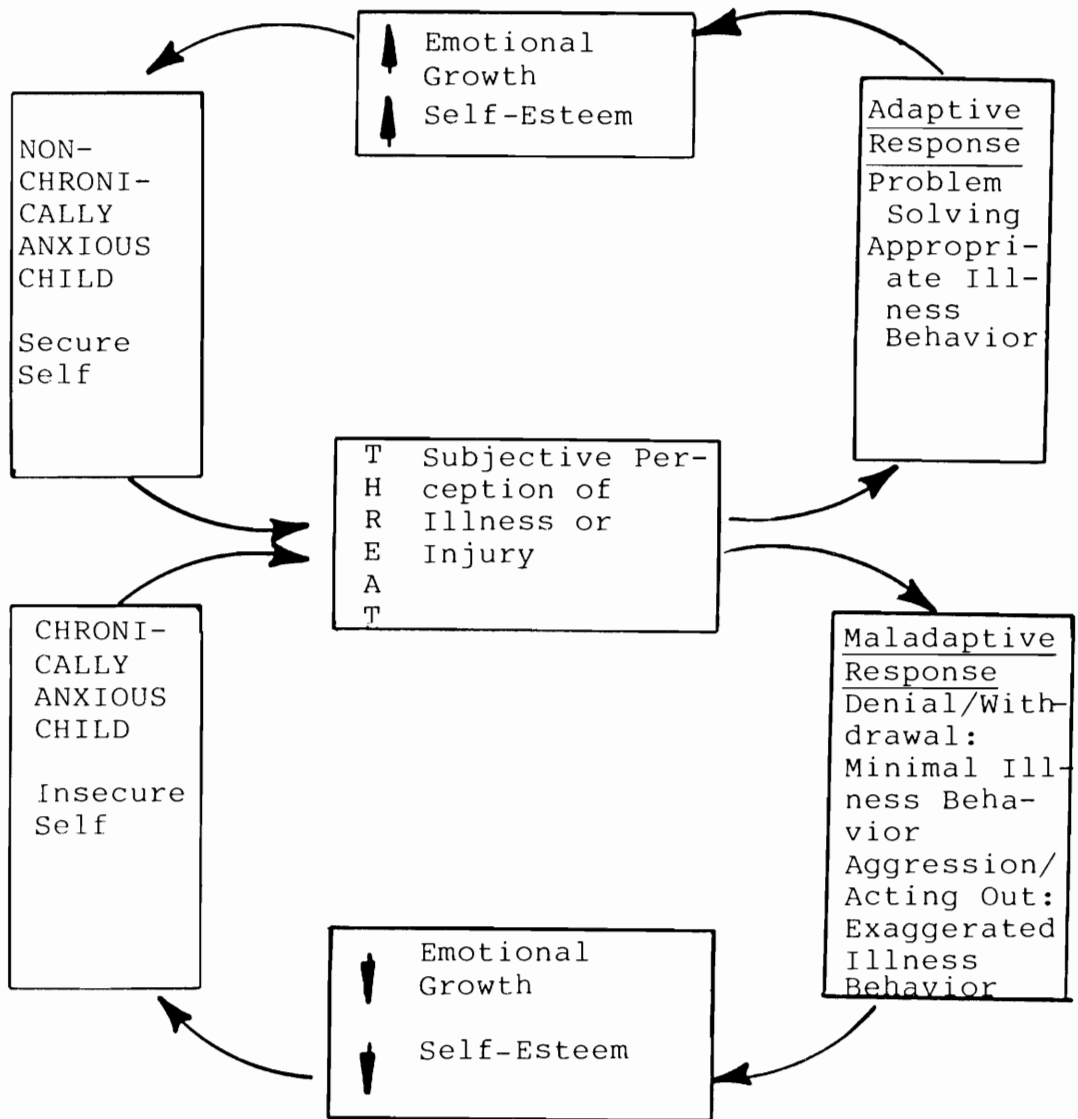


Figure 1. Responses of chronically anxious child to the threat of illness or injury.

CHAPTER II

LITERATURE REVIEW

A variety of events determine how children behave in given situations. There are no simple explanations. For the purpose of this study, chronic anxiety was defined as a consistent, unpleasant emotional state characterized by either anticipation of an unwanted event or uncertainty about the future. It was assumed that chronic anxiety is one factor that may influence a child's coping strategies, self-esteem and behavior.

Some anxiety is an inevitable part of growing up. The normal child shows anxiety no greater than the situation merits and is not apt to be overwhelmed by any states. The chronically anxious child, by contrast, shows excessive anxiety in a variety of circumstances (Barker, 1976). This variation in vulnerability is due to multiple factors which influence a child's levels of tolerance to emotional stress and capacity to cope with particular situations.

There is a vast body of literature dealing with the concept of anxiety. This review of the literature includes several theoretical perspectives, as well as reports of research relevant to the study.

Anxiety Theory

Several personality theorists have discussed the origins of anxiety. Freud was one of the first to direct attention to anxiety for the understanding of emotional and psychological disorders (Freud, 1936). He made a distinction between anxiety and fear and held that, in fear attention is directed to a real object, whereas anxiety refers to an inner condition of the individual and often has no identifiable object. Freud made a distinction between objective and neurotic anxiety. The former he viewed as a natural, useful function and as a reaction to an external danger. He defined neurotic or chronic anxiety as the development of anxiety inappropriate to the actual danger.

According to Freud, all anxiety occasions signify, in some sense, a separation from the mother. He hypothesized that anxiety has its source in the fear of primary loss or separation and is a function of the ego. The individual perceives the danger and utilizes energy or libido in coping with the threat. In summary, anxiety arises out of the individual's endeavor to avoid situations which the ego perceives to be dangerous or threatening (Freud, 1936).

Erikson also discriminated between anxiety and fear. Erikson conceptualized fears as states of apprehension which focus on isolated and recognizable dangers so

that they may be judiciously appraised, realistically countered, and mastered. In contrast, anxieties are diffuse states of tension which magnify and may even cause the illusion of an outer danger without identifying any avenue of defense or mastery (Erikson, 1950).

Erikson postulated that it is not the fear of danger, but fear of a state of aimless anxiety which drives one into irrational action or denial. According to Erikson, when threatened with such anxiety, the person may either magnify a danger for which fear is not justified, or ignore a situation of danger which would ordinarily arouse considerable fear (Erikson, 1950).

Horney expanded the concept of anxiety by examining it within a social context. Basic anxiety was described by Horney as the feeling a child has of being isolated and helpless within a potentially hostile world (Horney, 1937, 1945). In describing the type of environment that tends to generate feelings of anxiety, she lists a lack of warmth, unfulfilled promises, preference for other children and constant interference with the child's wishes. Because of children's dependence, they cannot consciously experience hatred in the environment; therefore, the perceived hostility is repressed and experienced as anxiety. In Horney's view, neurotic anxiety and helplessness are the result of an inner conflict between dependency and hostility. What is felt as the

source of danger is mainly the anticipated hostility of others (Horney, 1937). Horney felt the child could do nothing about the conflict but develop neurotic defenses in order to cope with a hostile world. These neurotic trends or defenses are essentially security measures arising out of basic anxiety.

Horney related the concept of anxiety to interpersonal relationships and believed that the appropriate reaction to threatening situations must be defined in terms of the social context because the subjective evaluation of what is appropriate or normal varies depending on the situation and the persons involved. With this in mind, Horney suggested that the intensity of the anxiety is proportionate to the meaning the situation has for the individual concerned (Horney, 1937).

Sullivan regarded the concept of anxiety as a negative interpersonal phenomenon that first occurs in early infancy. He maintained that anxiety is the most potent, interpersonal force that can effect the human infant, arising out of the infant's apprehension of the disapproval of the significant persons in his interpersonal world. Sullivan postulated that tension or anxiety, when present in the mothering one, induces anxiety in the infant. Anxiety is felt emphatically and is experienced as the mother's disapproval, and therefore, is a threat to the fundamental mother-child relationship

(Sullivan, 1953).

Sullivan proposed that the self is formed out of the growing infant's need to deal with anxiety-creating experiences and the subsequent need to dichotomize activities which produce disapproval or approval. It was Sullivan's view that anxiety provides a powerful influence on the course of development and is responsible for a great part of the inadequate performances of people in interpersonal situations (Sullivan, 1953).

Anxiety has been a focus of the learning theorists who suggest that symptoms are learned because they reduce anxiety. The organism perceives danger and anxiety is the conditioned response which follows in anticipation of the danger (Mower, 1939).

Another view is that anxiety is experienced physically, as well as psychologically. When an individual is subjected to threat, certain bodily changes occur in preparation for fight or flight. Physical changes are experienced as anxiety or fear and are felt as generalized pervasive, negative emotions (Cannon, 1937). According to May, the form of the emotion will be determined by the interpretation the individual makes of the threatening situation (May, 1950).

In considering the behavioral response of children to illness, it would seem that aggression or acting out behaviors may occur when the threat is interpreted

as one that can be mastered by attack. On the other hand, if the situation is perceived as too overwhelming and to be avoided, the defense used by the child may be withdrawal or denial.

Anxiety and Illness Behavior

Pain is sometimes listed among the indirect manifestations of anxiety. The association between anxiety and manifestations and/or reports of discomfort is commonly acknowledged. A number of researchers have studied the relationship between pain endurance and general personality characteristics such as the level of anxiety.

In developing a behavioral distress rating scale to measure anxiety in children undergoing medical procedures, Katz and associates found it difficult to separate anxiety from pain (Katz, Kellerman & Seigel, 1980; 1981). Their conclusion was that their scale would most appropriately be considered a measure of behavioral distress incorporating components of anxiety, fear and pain.

Luken and Ray (1982) explored the relationships between perception and tolerance of pain and personality characteristics in a nonpatient population. The results of the study did not support a relationship between enduring personality variables and pain tolerance; however, they did document a relationship between pain tolerance and current thought processes or self-control-

ling devices. This study indicates that tolerance of pain is related to situational variables such as cognitive focus. It would seem that pain behavior is closely related to cognitive as well as emotional factors.

Several studies have investigated the relationship of anxiety to health history. Daniel (1980) compared healthy and ill adolescents and found no significant differences on measures of trait anxiety. He found in both ill and healthy groups that adolescents with high self-esteem were less likely to be anxious and more likely to perceive greater control over their health.

Similarly, Brodie (1974) found a significant correlation between general anxiety and illness anxiety in school-aged children which supported the view that the thought of illness can be related to anxiety in healthy children.

Illness Behaviors

Illness behaviors and the sick role concept are similar; however, there are distinctions to be made. The sick role model, formulated by Parsons, a sociological theorist, consists of four interrelated dimensions (Parsons, 1951). According to Parsons, the occupant of the sick role is exempt from responsibility for the illness and exempt from social role obligations. In addition, the sick person has the obligation to get

well and the obligation to seek help and to cooperate in the process of getting well.

The term "illness behavior" refers to the way in which given symptoms may be differentially perceived and acted upon by different persons or how an individual responds once the subjective perception of illness has been made (Mechanic, 1961). In other words, what type of behavioral pattern will an individual adopt when ill?

The process by which the individual adopts a perspective of the sick role begins in childhood. Whether a child does or does not assume the sick role when ill is dependent on a variety of influences. Both the sick role and illness behaviors are affected not only by the nature and severity of the illness but also by social and personal factors (Segall, 1976).

Health History and Beliefs

Data reported by both Campbell and Brodie suggest that children's own health histories influence their conceptualization of illness (Brodie, 1974; Campbell, 1975). Brodie's results demonstrated that healthy children do not view illness the same as acutely and chronically ill children, and that this disparity of views is best explained by the phenomenon of illness itself rather than by anticipation or even the memory of previous illness (Brodie, 1974). Campbell, in examining

recent general health status and history of hospitalization, found these factors to be influential and age-dependent. Campbell attributed this to an age-linked ability to interpret illness-related experiences more appropriately (Campbell, 1975). Therefore, direct or indirect contact with illness is a significant source of knowledge and provides children with experiences from which they learn appropriate or inappropriate behaviors.

Influences contributing to the child's health and illness orientations extend beyond specific illness-relevant experiences. The feelings of a sick child are related to beliefs about health and illness, as well as perceived control over illness (Gochman, 1971) or cause and cure of illness (Bibace & Walsh, 1980). Gochman found that children with high levels of perceived internal control tend to see themselves as able to determine the outcome of their encounters with illness (Gochman, 1971).

Other studies indicate that children see health as a positive attribute which enables them to participate in desirable activities and allows them to play and participate with peers (Natapoff, 1978). Children conceptualize illness in terms of an experience they can avoid through certain behaviors, as having both psychological, as well as physical aspects, and as an event

to which they are vulnerable to varying degrees (Bibace & Walsh, 1981). Considerable evidence also demonstrates that there are links between illness behavior and factors such as age, sex, socioeconomic status and role relations as well as variations in health orientations.

Age and Development

Research clearly suggests that the child's concept of illness changes with age and development (Bibace & Walsh, 1981; Campbell, 1975; Natapoff, 1978). The empirical evidence also suggests that children's perceptions of their behaviors when ill are also contingent on age and are clearly related to the child's developmental status (Campbell, 1978). Maturation has a great deal of influence on the child's perception of illness and illness behaviors. Age is considered a fairly influential factor, since as children grow older, they are expected to act as "big boys or girls." Also, as they grow older, there is a role-relevant impact of self-socialization: the children fit their behavior to their own concepts of appropriateness. This age-linked trend in illness behavior provides some evidence of a developmental process by reflecting the influence of internalized norms and the acceptance of more socially desirable adult behaviors (Campbell, 1978).

Sex Roles

The child's sex serves as a basis for role differentiation and is related to expectations and socialization objectives. Emotionality, as well as willingness to accept the sick role, have been shown to be correlated to sex role expectations (Campbell, 1978).

Additional data clearly support the idea that sex is a significant influence that effects children's risk taking and denial or pain responses (Mechanic, 1964). Sex roles are culturally induced standards and are generally not relinquished during illness.

Values

Values are also significant elements in the shaping of individual variations in the sick role (Campbell, 1978; Mechanic, 1964). Campbell found that the child's perception of the sick role was related to socioeconomic status and maternal education and that these values became more influential as the child grew older (Campbell, 1978). In viewing the relationship between social status and illness behavior, Mechanic observed that the mother's educational achievement was a better predictor than family income (Mechanic, 1964). His findings indicated that mothers with less education tended to be less concerned with detecting illness in their children. Maternal values directly influenced the child's sick role appraisal.

Campbell discovered that among older children, the more importance a mother placed on self-direction, the less emotional the children's perceptions of themselves. This factor also was linked to the number of hours the mother worked. It was not determined whether the mother's working led to the stoic report of the child or whether mothers of less-emotional children felt more free to work (Campbell, 1978). This result was contingent on age, again suggesting a developmental change in the importance of values.

Childrearing Practices

As corroborated by Campbell (1978) and Mechanic (1964), as well as others, parental values do have importance in socialization and learning because they provide general guidelines for action. In other words, they set the stage for the enactment of roles.

Patterns of illness behavior are also influenced by childrearing practices. In comparing the effects of childrearing practices on health behaviors, Pratt found mothers to be more influential than fathers, since they performed most of the childrearing activity (Pratt, 1973). Learned behaviors were also significant when studying ways in which children deal with symptoms. The identification of symptoms as either important or unimportant impacts the child's help-seeking behavior (Mechanic, 1964). Campbell found that symptom interpre-

tation considered alone, or in conjunction with other factors, was a strong predictor of health relevant action. His interviews showed that mothers and children, younger and older boys and girls alike, made similar differentiations among symptoms (Campbell, 1975). It seems that the child is taught to attend to various symptoms selectively. Gochman looked at the salience of health as a related variable and found that in children for whom health holds great importance, symptoms are considered more serious (Gochman, 1971).

Family Organization

Mechanic has probably explored the widest variety of variables involved in health and illness behaviors in children, including family stress and psychological characteristics of the mother. Mothers under stress tend to report more symptoms for their children, but the data available do not determine if the children actually reported more symptoms to the mother (Mechanic, 1964; 1976).

The most frequent interpretation in the literature suggests that children who have a good relationship with their parents will not only manifest fewer signs of psychological upset but will, in fact, be less disturbed by illness both during and after this experience. A number of authors have discussed the possibility that parents, because of their own anxiety and inability

to provide support and a sense of security, affect the child's reaction to illness experiences (Goffman, Buckman & Shade, 1957).

Minuchin and others looked at psychosomatic illness and family organization and found that certain types of family patterns, such as rigidity and lack of conflict resolution, encourage somatization (Minuchin, Baker, Rosman, Liebman, Milman & Todd, 1975). Since psychosomatic symptoms are often regarded as responses to life stress, one might expect that patterns of illness and illness behavior would be different in families characterized by stressful circumstances as compared with those under less tension or conflict.

Personality

Certainly, the child's self-value and coping styles reflect the environment in which he/she is socialized, yet there are children who possess the ability to prosper even in adverse circumstances and whose innate strengths appear to outweigh the negative factors within the environment (Burke, 1978).

Despite the fact that many studies, over the past 20 years, have looked at influences on children's health and illness behaviors, relatively few have concentrated on the personality characteristics of the child. Pratt's findings indicate that autonomy and children's self-ratings of competency were both significantly and posi-

tively related to health practices. She concluded that these fostered active coping behaviors and, therefore, sound health behaviors. As previously cited, Gochman explored perceptions of vulnerability and locus of control as they related to health behaviors in children and highlighted the interplay of factors in determining these behaviors (Gochman, 1971). Perceived vulnerability may enhance an individual's sensitivity to environmental cues that activate behavior. These behaviors, along with feelings of control, may then lead to a reduced sense of vulnerability.

Although several researchers, including Gochman (1971) and Pratt (1973) have investigated psychological factors such as self-control, competency and self-reliance and have increased the understanding of acquisition of the child's health relevant behaviors, there have been few comparable studies to look at these characteristics and their significance to the child's behaviors when the perception of illness has been made.

Previous studies suggested that children tend to be anxious about illness and possess distorted views about the cause of illness and view it as a direct punishment. However, Brodie's study, which found a high correlation between general anxiety and illness anxiety, indicates that children viewed as anxious may possess distorted views of illness (Brodie, 1974).

Summary

The research cited has provided evidence of the variety of factors involved in the development of the child's illness-related behaviors. These studies have demonstrated that illness behaviors depend not only on the child's current state of health but on his maturational level, learning experiences, family organizational patterns and personality.

In view of these findings, it seems there is a need for further exploration of children's ability to deal with threatening experiences, such as illness, and the relationship this has to their own appraisal of their behavior when ill. Most of the positions reviewed have agreed that neurotic patterns have their origins in the individuals' needs to protect themselves from anxiety or anxiety-creating situations, and that anxiety represents a threat to security. The present study seeks to explore this assumption in the presence of the subjective threat of illness.

CHAPTER III

METHODOLOGY

This study was undertaken to determine if there was a relationship between chronic anxiety in well, latency-aged children and the tendency to either deny pain and illness or to exaggerate it. The data were interpreted through the use of Pearson product-moment correlation coefficient (r) in order to determine the relationships among three aspects of illness behavior, as well as to examine the relationship between total manifest anxiety and total perception of illness behavior. T-tests were used in analyzing the data in order to determine whether a significant difference existed between the responses of healthy children and those with a recent history of significant illness.

Sample

Subjects used in the study consisted of a convenience sample of well children who were members of the Girl and Boy Scouts of America living in the Salt Lake Valley. The sample included 29 boys and 25 girls between the ages of eight and 11. Subjects were chosen on the basis of age, willingness of their troop leaders to

participate in the research study, and parental consent.

Approximately eight scout leaders were initially contacted through the scout associations. Two Boy Scout troops and two Girl Scout troops chose to participate in the study. Consent forms were then sent home with prospective participants in order to obtain permission from a parent or guardian (Appendix A). All children who returned the consent form were included in the study.

Design

In addition to giving permission for their child to participate in the research project, parents were also requested to answer six questions on the parental consent form regarding their child's recent health status and history of illness. This information was obtained for the purpose of establishing whether a significant difference existed between the perceived illness behaviors of healthy children and those with a recent significant history of illness. Children with chronic or serious illness or injury within the past year were considered to have a recent significant history of illness.

In order to ensure confidentiality, the only personal data required of each individual child were age and sex. The measures used on the remainder of the children's questionnaire included two questions regarding length of illness over the past year, 13 questions that dealt with perceptions of illness, and a 28 question

anxiety scale (Appendix B).

The two questions regarding length of illness were used to identify any discrepancies between the parental responses to their child's health history and the child's perception of length of illness during the past year.

Thirteen items on the child's questionnaire dealt with children's perceptions of their own behaviors in a variety of illness-related situations and were reconstructions of the measures used by Campbell (1978). These questions were answered on a scale of one to four, one indicating minimal illness behavior. The scale is divided into three dimensions of sick role functioning. Table 1 provides a list of the number of questions in each dimension along with the range of possible scores.

The last 28 items on the child's questionnaire were adapted from a standardized manifest anxiety scale developed by Reynolds and Richmond and measure children's feelings about themselves and their ability to solve problems (Reynolds & Richmond, 1979). These questions were answered either no, which received a score of zero, or yes, which received a score of one. Low scores indicated lower levels of anxiety. This scale also contains three subscales, each with a range of possible scores (Table 1).

Table 1
Questions in Each Dimension with Range of Scores

Dimension	Number of Questions	Range of Scores
<u>Illness Behavior Scale</u>		
Emotionality	7	7-28
Acceptance of the sick role	4	4-16
Communication of the sick role	2	2- 8
Total	13	13-52
<u>Manifest Anxiety Scale</u>		
Physical aspects	9	0- 9
Worry	10	0-10
Fear	9	0- 9
Total	28	0-28

Data Collection Procedure

The investigator met with each scout troop during one of its regularly scheduled meetings. Each child who had returned the completed parental consent form was given a questionnaire. The questionnaires and parental consent forms were number coded to protect confidentiality. The children involved in the study met as a group and were then instructed to read each question carefully and circle the answer that best described the way they thought they would act or feel under the described situation. All questionnaires were completed within a 15-25 minute period.

CHAPTER IV

RESULTS AND DISCUSSION

Age and sex distribution of the sample are presented in Table 2. The mean age for girls was 10.04, and the mean age for boys was 9.3. Thirteen children in the study were determined to have a recent significant history of illness. None of the 13 had a serious chronic illness. Examples of illnesses or hospitalizations within the past year included chronic bladder infections, asthma and pneumonia.

Tables 3 and 4 show the ranges and means of scores for each of the dimensions of illness behavior and manifest anxiety. While the highest possible score for total illness behavior was 52, the highest score in this sample was only 43, indicating only low to moderate scores were obtained. However, it is impossible to determine what the average values for this scale should be since none were given in Campbell's original study (Campbell, 1978). Likewise, 28 was the highest possible manifest anxiety score (WIFT), yet this sample showed only low through moderate scores ranging from one to 23. Reynolds and Richmond, in their studies to test for validity and reliability of the "What I think and

Table 2
Age and Sex Distribution of Sample

Sex	8 year olds	9 year olds	10 year olds	11 year olds	Total	Mean
Male	5	12	10	2	29	9.3
Female	<u>0</u>	<u>7</u>	<u>10</u>	<u>8</u>	<u>25</u>	10.4
	5	19	20	10	54	

Table 3
Illness Behavior Mean Scores, Standard Deviations
and Range

Dimension	Possible Range	Actual Range	Mean	Standard Deviation
Emotionality	7-28	7-22	16.574	3.094
Acceptance	4-16	4-16	10.056	2.666
Communication	2-8	2-8	6.667	1.542
Total Illness Behavior	13-52	14-43	33.296	5.304

Table 4
Manifest Anxiety Mean Scores, Standard
Deviations and Range

Dimension	Possible Range	Actual Range	Mean	Standard Deviation
Physical	0-9	0-9	3.389	2.087
Worry	0-10	0-10	4.315	3.027
Fear	0-9	0-8	3.111	2.263
Total Anxiety	0-28	1-23	10.815	6.223

feel," scale found mean scores to be 12.78 for eight-year olds, 16.64 for nine-year olds, and 12.52 for ten-year olds (Reynolds & Richmond, 1978). The mean score for this investigator's sample of eight through ten-year olds was 10.82 which is considerably lower. Based on these scores, the sample is a fairly homogenous one.

The results of the Pearson product-moment coefficient (r) of all dimensions of illness behavior and manifest anxiety (Figure 2) indicate that of all the dimensions of the children's perception of their own illness behaviors, only the emotionality dimension was significantly correlated with any of the dimensions of anxiety.

The three hypotheses were addressed as follows:

Hypothesis One

Hypothesis one stated:

The more anxious latency-aged children are, the more likely they will be to perceive themselves displaying either very many or very few illness behaviors.

This hypothesis was tested by the use of Pearson product-moment correlation coefficient (r). As reported in Table 5, there was no significant relationship between the total illness behavior score and the total manifest anxiety score ($p < .05$). Therefore hypothesis one was not supported by the use of correlation coefficients.

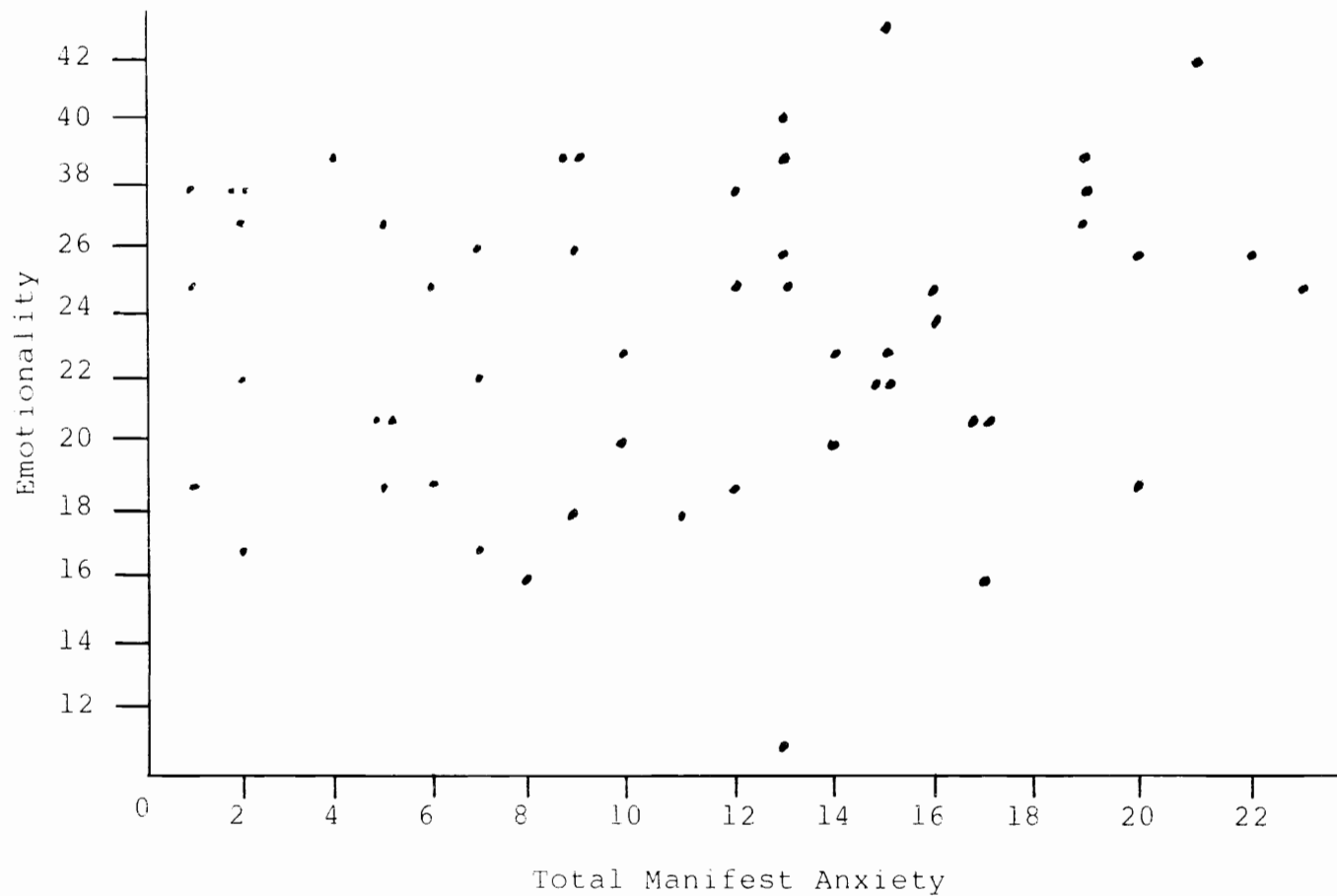


Figure 2. Scatterplot of scores of total illness behavior and total manifest anxiety.

Table 5
 Pearson Product-Moment Correlation Coefficient (\underline{r})
 for All Dimensions of Illness Behavior
 and Manifest Anxiety

	Emotionality	Acceptance	Communication	Total Illness Behavior
Physical	$\underline{r}=.2629$ $\underline{p}=.027^*$	$\underline{r}=-.0548$ $\underline{p}=.347$	$\underline{r}=.0235$ $\underline{p}=.433$	$\underline{r}=.1326$ $\underline{p}=.170$
Worry	$\underline{r}=.3390$ $\underline{p}=.006^{**}$	$\underline{r}=-.0560$ $\underline{p}=.344$	$\underline{r}=-.0135$ $\underline{p}=.461$	$\underline{r}=.1656$ $\underline{p}=.116$
Fear	$\underline{r}=.1983$ $\underline{p}=.075$	$\underline{r}=.0115$ $\underline{p}=.467$	$\underline{r}=.0216$ $\underline{p}=.438$	$\underline{r}=.1277$ $\underline{p}=.179$
Total Anxiety	$\underline{r}=.3252$ $\underline{p}=.008^{**}$	$\underline{r}=-.414$ $\underline{p}=.383$	$\underline{r}=.0092$ $\underline{p}=.474$	$\underline{r}=.1715$ $\underline{p}=.108$

Note. $*\underline{p} < .05$; $**\underline{p} < .01$; $\underline{n}=54$.

The scatterplot in Figure 2 shows that the eight highest anxiety scores had higher illness behavior scores than the majority of children in the study which may indicate that latency-aged children with moderately high total manifest anxiety scores may be more likely to perceive themselves displaying many illness behaviors. However, those children with the highest illness behavior scores had a variable range of anxiety scores, indicating that children who perceive themselves as displaying many illness behaviors are not necessarily anxious. The data of this study demonstrated no significant correlation between manifest anxiety and illness behavior. For the sample of 54 children, however, children with moderately high anxiety scores were more likely to perceive themselves displaying many illness behaviors rather than very few illness behaviors. Therefore, hypothesis one was only partially supported by the data.

Hypothesis Two

Hypothesis two stated:

The less anxious latency-aged children, the more likely they will be to perceive themselves displaying a moderate amount of illness behaviors.

This hypothesis was not supported by the Pearson product-moment correlation coefficient (r) since no significant relationship was found between total manifest anxiety and total illness behavior ($p < .05$). Referring once

again to Figure 2, it can be seen that those children with lower manifest anxiety scores than the majority of children in the sample lie within a moderate range for perceptions of illness behavior. This indicates that children who have had low anxiety scores were apt to perceive themselves as displaying a moderate amount of illness behaviors.

Hypothesis Three

Hypothesis three stated:

There will be no significant difference between the perceived illness behaviors of healthy children and those of children with a recent significant history of illness.

This hypothesis was tested by the t -test for independent measures. Table 6 shows the t -values for each of the dimensions of illness behavior and manifest anxiety. No statistically significant differences existed in any of the dimensions of illness behavior between the responses of healthy children and children with a recent significant history of illness; therefore, hypothesis three is supported by the data.

Additional Findings

The purpose of this study was to examine the relationship between chronic anxiety and perceptions of illness behavior in children. Although no significant correlation was found between these two measures, there

Table 6

T-test of Dimensions of Illness Behavior and Manifest Anxiety Between Children With a Significant History of Illness and Those Without a Recent Significant History of Illness

Variable	No. Cases	Mean	SD	t-value	2-tail Probability
Emotion					
Significant	41	16.4146	3.130	-.67	.506
Nonsignificant	13	17.0769	3.040		
Acceptance					
Significant	41	9.8293	2.558	-1.11	.272
Nonsignificant	13	10.7692	2.976		
Communication					
Significant	41	6.5366	1.614	-1.10	.275
Nonsignificant	13	7.0769	1.256		
Total Illness					
Significant	41	32.7805	5.624	-1.28	.207
Nonsignificant	13	34.9231	3.883		
Physical					
Significant	41	3.3902	2.189	.01	.993
Nonsignificant	13	3.3846	1.805		
Worry					
Significant	41	4.1220	3.043	-.83	.411
Nonsignificant	13	4.9231	3.013		
Fear					
Significant	41	3.0976	2.427	-.08	.939
Nonsignificant	13	3.1538	1.725		
Total Anxiety					
Significant	41	10.6098	6.576	-.43	.671
Nonsignificant	13	11.4615	5.125		

were some significant additional findings when looking at the individual dimensions of each scale.

In examining the dimensions of illness behavior and anxiety, it was discovered that the dimension of emotionality had a significant correlation to manifest anxiety regarding a) physical aspects ($p < .05$), b) worry aspects ($p < .01$), and c) a total manifest anxiety score ($p < .01$) (Figure 2). This seems to indicate that of all the aspects of illness behavior, emotionality is most related to chronic anxiety while acceptance of the sick role and communication of the sick role are not influenced by the child's level of anxiety.

Referring to Figure 3, we see that there is some indication that those children with the highest anxiety scores were likely to have higher scores on the emotionality dimension. Yet, low emotionality scores are not indicative of low anxiety scores. This may indicate that only higher levels of anxiety are related to one's perception of illness behavior or, more specifically, one's perception of emotionality when confronted with an illness experience.

Another finding of this study was that males scored significantly higher in the communication of the sick role than did females. Table 7 shows the t -values for each of the dimensions of illness behavior and manifest anxiety. No statistically significant difference existed

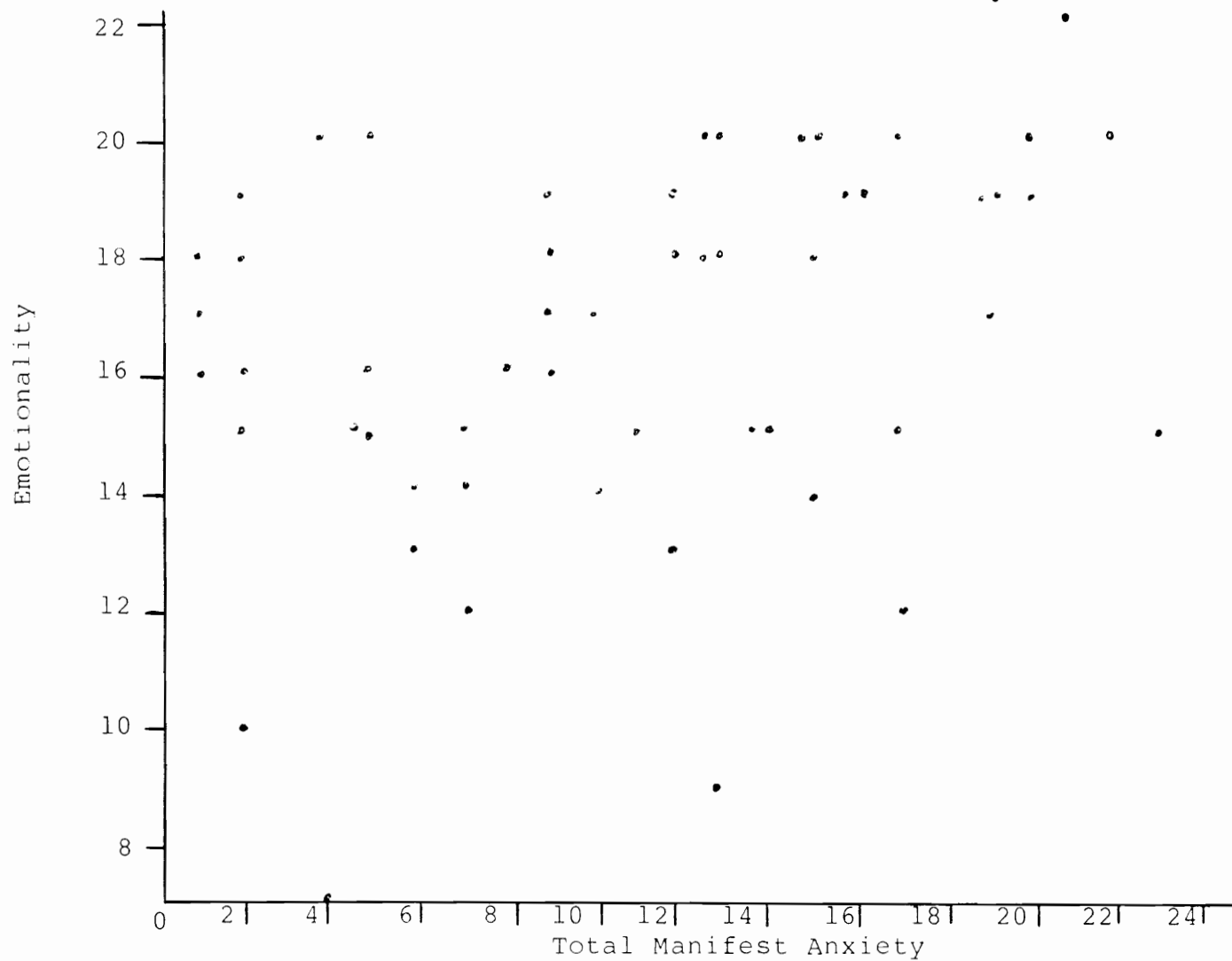


Figure 3. Scatterplot of scores of emotionality and total manifest anxiety.

Table 7

T-test of Dimensions of Illness Behavior and Manifest
Anxiety Between Males and Females

Variable	No. Cases	Mean	S.D.	t-value	degrees of freedom	2-tail probability
Emotion						
Male	29	15.8966	3.416	-1.77	52	.083
Female	25	17.3600	2.515			
Acceptance						
Male	29	10.5862	2.946	1.60	52	.116
Female	25	9.4400	2.200			
Communication						
Male	29	7.0690	1.534	2.13*	52	.038
Female	25	6.2000	1.443			
Total Illness						
Male	29	33.5517	5.968	.38	52	.707
Female	25	33.0000	4.518			
Physical						
Male	29	3.0000	2.087	-1.49	52	.142
Female	25	3.8400	2.035			
Worry						
Male	29	4.000	2.777	-.82	52	.416
Female	25	4.6800	3.313			
Fear						
Male	29	2.7931	2.194	-1.11	52	.270
Female	25	3.4800	2.330			

Table 7 (Continued)

Variable	No. Cases	Mean	S.D.	t-value	degrees of freedom	2-tail probability
Total Anxiety						
Male	29	9.7931	5.882	-1.31	52	.197
Female						

Note. * $p < .05$.

in any dimension other than communication ($p < .05$). This could be due to a greater use of verbal behavior on the part of boys and they may be more likely to communicate when they are ill.

Although not statistically significant, girls had a higher mean value in emotionality. Girls may be more likely to communicate their illness through crying than through the use of verbal expression.

This finding was in contrast to previous studies which found boys to be more stoic and less communicative than girls (Campbell, 1978; Mechanic, 1964). Possible explanations for this could include greater attentions of males to symptoms requiring interventions and/or rejection of stereotyped stoic male roles.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

The study was designed to examine the relationship between the dimensions of manifest anxiety and latency-aged children's perceptions of their behaviors when ill.

The findings suggest that of all the dimensions of illness behavior, only emotionality was significantly correlated with chronic anxiety. The results also indicated that those children with higher anxiety scores than the majority of children in the sample tended to perceive themselves displaying many illness behaviors, possibly indicating exaggerated behavior as a maladaptive response. However, children who perceived themselves as displaying many illness behaviors were not necessarily anxious and may have been influenced by multiple factors such as health beliefs and childrearing practices.

The findings of the study also revealed that there was no significant difference between the responses of children with a recent history of illness or injury and those children without a significant history of illness. This finding supports that of Brodie (1972)

who suggested that the child's perceptions of illness were best explained by the phenomenon of illness itself, rather than anticipation or even the memory of a previous illness.

Limitations

One of the greatest limitations of this study may have been the use of the illness behavior scale for which reliability and validity standards had not been established. The scale used was a reconstruction of Campbell's (1978) scale. Reconstructing the scale for the study was necessary since adequate information on the original scale was not available.

The homogeneity of the sample was a limitation. Due to difficulty gaining access to several school systems, the study was limited to a convenience sample of 54 children with similar socioeconomic backgrounds. Children who are active members of the Girl Scouts and Boy Scouts of America may be more likely than a more heterogeneous population to speak about and attend to matters involving health and well-being. As members of such a social group, they may also tend to be more likely to adapt and cope with threats to their self-esteem. Therefore, the results of the study cannot be generalized to a larger population.

Although several correlations were significant, most of the relationships were not strong. Had the

sample size been larger, more of a variation in scores may have been demonstrated.

Implications for Nursing

Chronic anxiety, as it relates to illness behavior, can only be understood within the context of behaviors that have been maintained beyond an acute situation. It is important not to take one episode of exaggerated behavior out of context and label a child as other than normal. Some illness behaviors are defense mechanisms and are to be considered strengths. Conversely, some degree of denial may be necessary at times in order to carry out necessary functions.

In order to assist the child in dealing with anxiety, members of the helping professions, including nurses, must be able to identify the presence of anxiety and recognize those situations which the child perceives as threatening. In addition, the nurse needs to be aware of the child's individual coping style and past experiences with threatening situations.

If the perception of illness or injury presents a threat to children, then they should be assisted in dealing with that threat. Through the provision of experiences which enhance children's abilities to confront threats such as illness or injury, the nurse may assist them in developing adaptive responses and a positive sense of self-esteem.

There still seems to be a discrepancy in nursing between what is known and what is practiced. Patient or health education should be concerned not only with the transfer of facts and information but also with the feelings and perceptions of the learner. When at all feasible, health teaching with children should be geared to the individual child and family so that fears and vulnerabilities can be assessed and appropriate teaching interventions devised.

Recommendations for Further Research

The study was designed to increase understanding of the relationship between chronic anxiety and children's perceptions of their behaviors when ill. In view of factors which may have affected the results, several recommendations can be made:

1. The validity and reliability of the illness behavior tool used in this research should be further tested.

2. The study should be repeated using a larger sample which may reflect greater validity.

3. Since relationships were suggested between illness behavior and high anxiety scores, the study should be repeated using a sample who exhibited high anxiety scores.

4. The study should be repeated using healthy children and children known to have serious chronic

illnesses to see if there is a significant difference in their perception of illness behavior.

In addition to the above recommendations, consideration should be given to examining more closely the role of family process and organizational patterns as they relate to illness behavior in the child. Further research in this area should focus on the behavior of the child within the context of the family.

APPENDIX A

PARENTAL CONSENT FORM AND
QUESTIONNAIRE

Consent Form

Dear Parent/Guardian:

The purpose of this letter is to obtain permission for your child to participate in a study that will investigate the various ways children behave when they are sick or injured.

Your child will be asked to answer a series of questions dealing with illness related situations and the way he/she thinks and feels. This questionnaire will be given in group form and will take approximately 45 minutes to complete.

The obvious benefit to your child is the knowledge that he/she has participated in a study that will provide information about illness behavior and possibly lead to practical programs and projects concerning variations in childrens' illness behavior.

In order to assure confidentiality, your child will not have to sign his name on the questionnaire. Your signed consent will be coded and allow us to determine which children will be given the questionnaires. These data will be presented in grouped form for the final report and no names will be used to identify either child or parent. Participation in this study is entirely voluntary. If your child wishes to withdraw or should you decide to refuse once the study is in progress, your child will be in no way jeopardized.

Should you have any questions pertaining to this study or would like to be notified of its results, please feel free to call Pat Ferrari, R.N., at 487-1467.

I hereby approve participation of _____
in this study. Child's Name

Signature of Approving Person

Legal Position/Relationship
to child

Please take the time to complete the following questions:

1. Does your child have a chronic illness? Yes No
2. If yes, what is the illness? _____
3. Has your child been hospitalized for a serious illness? Yes No
4. If yes, how long ago?
a) within the past year; b) within the past five years; c) over five years ago
5. Has your child even had a serious illness or injury that hasn't required hospitalization? Yes No
6. If yes, how long ago?
a) within the past year; b) within the past five years; c) over five years ago

APPENDIX B

CHILDRENS' QUESTIONNAIRE

1. What is your age? ____
2. Are you a boy or a girl? ____
3. Circle the longest length of time during the past school year that you have been sick:
 - a) zero to 2
 - b) 3 or 4 days
 - c) 5 or 6 days
 - d) one week or longer
4. How often have you been sick during this school year?
 - a) not at all or only once
 - b) 2 or 3 times
 - c) once every month or 2
 - d) once every week or 2

On the following questions, circle the number of the answer that best describes what you would do.

5. When you are not feeling as good as usual, what do you do?
 - a) You tell your parent right away.
 - b) You wait a little while to tell them.
 - c) You wait a long time before telling them.
 - d) You don't tell them.
6. When you first begin to feel sick, how do you act?
 - a) You lie down to rest.
 - b) You sit down to rest.
 - c) You slow down at what you are doing.
 - d) You keep busy with what you are doing.
7. When you get sick, how often do you worry about your illness?
 - a) Very often
 - b) Sometimes
 - c) Almost never
 - d) Never
8. When you feel sick, how often do you want to go to the doctor?
 - a) You always want to go.
 - b) You sometimes want to go.
 - c) You almost never want to go.

- d) You never want to go.
9. When you don't feel well, how do you act?
- a) You always keep it to yourself.
 - b) You usually keep it to yourself.
 - c) You usually tell your parents.
 - d) You always tell your parents.
10. When you begin to feel better after an illness, how do you act?
- a) You always want to go out and play.
 - b) You sometimes want to go out and play.
 - c) You almost never want to go out and play.
 - d) You always stay in until you are all better.
11. When you are sick and having pain, how often do you show your feelings about the pain?
- a) All of the time
 - b) Most of the time
 - c) Almost never
 - d) Never
12. When you scrape your knee a little while you are playing, what do you do?
- a) You ignore the scrape all of the time.
 - b) You mostly ignore the scrape.
 - c) You go on playing some of the time.
 - d) You stop playing and tell your parent or another adult.
13. How much do you cry when you are hurt?
- a) Very much
 - b) Some
 - c) Not very much
 - d) Not at all
14. If you wake up feeling a little sick, how do you look?
- a) You look the same as you usually do.
 - b) You look a little sad.
 - c) You look very sad.
 - d) You cry.
15. What do you do when you have to take bad tasting medicine?

- a) You complain very much.
 - b) You complain sometimes.
 - c) You don't complain very much.
 - d) You never complain.
16. When you begin to feel very sick with a bad stomach ache and tell your mother about it, how do you look?
- a) You look the same as you usually do.
 - b) You look a little sad.
 - c) You look very sad.
 - d) You cry.
17. When you get a shot or injection, how do you act?
- a) You complain very much.
 - b) You complain sometimes.
 - c) You don't complain very much.
 - d) You never complain.

On the following questions, circle the word YES if you think it is true about you or circle the word NO if you do not think it is true about you.

- | | | |
|---|-----|----|
| 18. I have trouble making up my mind. | YES | NO |
| 19. I get nervous when things do not go the right way for me. | YES | NO |
| 20. Others seem to do things easier than I can. | YES | NO |
| 21. Often I have trouble getting my breath. | YES | NO |
| 22. I worry a lot of the time. | YES | NO |
| 23. I am afraid of a lot of things. | YES | NO |
| 24. I get mad easily. | YES | NO |
| 25. I worry about what my parents will say to me. | YES | NO |
| 26. I feel that others do not like the way I do things. | YES | NO |
| 27. It is hard for me to get to sleep at night. | YES | NO |
| 28. I worry about what other people think about me. | YES | NO |

- | | | | |
|-----|--|-----|----|
| 29. | I feel alone even when there are people with me. | YES | NO |
| 30. | Often I feel sick to my stomach. | YES | NO |
| 31. | My feelings get hurt easily. | YES | NO |
| 32. | My hands feel sweaty. | YES | NO |
| 33. | I am tired a lot. | YES | NO |
| 34. | I worry about what is going to happen. | YES | NO |
| 35. | Other children are happier than I. | YES | NO |
| 36. | I have bad dreams. | YES | NO |
| 37. | My feelings get hurt easily when I am fussed at. | YES | NO |
| 38. | I feel someone will tell me I do things the wrong way. | YES | NO |
| 39. | I wake up scared some of the time. | YES | NO |
| 40. | I worry when I go to bed at night. | YES | NO |
| 41. | Its hard for me to keep my mind on my school work. | YES | NO |
| 42. | I wiggle in my seat a lot. | YES | NO |
| 43. | I am nervous. | YES | NO |
| 44. | A lot of people are against me. | YES | NO |
| 45. | I often worry about something bad happening to me. | YES | NO |

SELECTED BIBLIOGRAPHY

- Barker, P. (1976). Basic child psychiatry. Baltimore: University Park Press.
- Bibace, R., & Walsh, M. (1980). Development of childrens' concepts of illness. Pediatrics, 66 912-17.
- Bibace, R., & Walsh, M. (1981). Childrens' conceptions of health, illness and bodily functions. San Francisco: Jossey-Bass, Inc.
- Burke, (1978). The invulnerable child. Nursing Papers and Perspectives, 12, 48-55, 198.
- Brodie, B. (1974). Views of healthy children toward illness. American Journal of Public Health, 64, 1156-1159.
- Campbell, J. (1975). Illness is a point of view: The development of childrens' concepts of illness. Child Development, 46, 92-100.
- Campbell, J. (1975). Attribution of illness: Another double standard. Journal of Health and Social Behavior, 16, 114-126.
- Campbell, J. (1978). The child in the sick role: Contributions of age, sex, parental status and parental values. Journal of Health and Social Behavior, 19, 35-51.
- Cannon, W. (1937). Bodily changes in pain, hunger, fear, and rage. New York: Appleton-Century-Crofts.
- Daniel, W. (1980). Psychological effects of illness in adolescents. I. Anxiety, self-esteem, and perception of control. The Journal of Pediatrics, 97, 126-131.
- Davidson, P., & McDougall, C. (1969). Personality and pain tolerance measures. Perceptual and Motor Skills 28, 787-90.
- Erikson, E. (1950). Childhood and society. New York: W.W. Norton and Company.
- Freud, S. (1936). The problem of anxiety. New York: W.W. Norton Company.
- Freud, A. (1952). The role of bodily illness in the mental life of children. The Psychoanalytic Study of the Child, 7, 69-81.

- Gochman, D. (1971). Some correlates of childrens' health beliefs and potential health behavior. Journal of Health and Social Behavior, 12, 148-154.
- Goffman, H., Buchman, W., & Shade, G. (1957). Parents' emotional responses to their child's hospitalization. American Journal of the Disabled Child, 93, 629-37.
- Horney, K. (1937). The neurotic personality of our time. New York: W.W. Norton Company.
- Horney, K. (1945). Our inner conflicts. New York: W.W. Norton Company.
- Katz, E., Kellerman, J., & Siegel, S. (1981). Anxiety as an affective focus in the clinical study of acute behavioral distress. Journal of Consulting and Clinical Psychology, 49, 470-71.
- Katz, E., Kellerman, J., & Siegel, S. (1980). Behavioral distress in children with cancer undergoing medical procedures. Developmental considerations. Journal of Consulting and Clinical Psychology, 48, 356-65.
- Kerr, N. (1978). Anxiety: Theoretical considerations. Perspectives in Psychiatric Care, 16, 36-46.
- Kerr, N. (1979, July). Anxiety levels of hospitalized psychiatric patients throughout total hospitalization. JPN and Mental Health Services.
- Lewis, C., & Lewis, M.A. (1982). Determinants of children's health related beliefs and behaviors. Family and Community Health, 4, 85-97.
- Luken, P. & Ray, B. (1982). Personality correlates of pain perception and tolerance. Journal of Clinical Psychology, 38, 317-20.
- May, R. (1950). The meaning of anxiety. New York: Ronald Press.
- Mechanic, D. (1961). The concept of illness behavior. Journal of Chronic Disease, 15, 189-194.
- Mechanic, D. (1964). The influence of mothers on their childrens' health attitudes and behavior. Pediatrics, 33, 444-453.
- Mechanic, D. (1976). Stress, illness and illness behavior. Journal of Human Stress, 2, 2-6.

- Minuchin, S., Baker, L., Rosman, L., Liebman, R., Milman, C., & Todd, R. (1975). A conceptual model of of psychosomatic illness in children. Archives of General Psychiatry, 32, 1031-38.
- Mower, O.H. (1939). A stimulus-response analysis of anxiety and its role as a reinforcing agent. Psychological Review, 46, 553-565.
- Natapoff, J. (1978). Childrens' views of health: A developmental study. American Journal of Public Health, 68 (10), 995-1000.
- Parsons, T. (1951). The social system. New York: The Free Press.
- Petrillo, M., & Sanger, S. (1972). Emotional care of the hospitalized child. Philadelphia: J.B. Lippincott Company.
- Pratt, L. (1973). Child rearing methods and children's health behavior. Journal of Health and Social Behavior, 14, 61-69.
- Reynolds, C., & Richmond, B. (1978). What I think and feel: A revised measure of childrens' manifest anxiety. Journal of Abnormal Child Psychology, 6, 271-280.
- Reynolds, C., & Richmond, B. (1979). Factor structure and construct validity of "What I Think and Feel": The revised childrens' manifest anxiety scale. Journal of Personality Assessment, 43, 281-283.
- Sarason, S., Davidson, K., Lighthall, F., Waite, R., & Ruebush, B. (1960). Anxiety in elementary school children. New York: John Wiley and Sons.
- Segall, A. (1976). The sick role concept: Understanding illness behavior. Journal of Health and Social Behavior, 17, 163-170.
- Sullivan, H.S. (1953). The interpersonal theory of psychiatry. New York: W.W. Norton Company.
- Watson, J. (1976). Research and literature on children's responses to injections: Some general nursing implications. Pediatric Nursing, 2, 7-8.